

LOW DROPOUT VOLTAGE REGULATOR WITH ON/OFF CONTROL

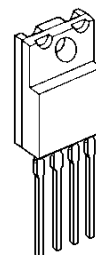
■ GENERAL DESCRIPTION

The NJM2396 is low dropout voltage regulator with ON/OFF control.

The output current is up to 1.5A and dropout voltage is 0.2Vtyp. at $I_o=0.5A$.

The NJM2396 is suitable for power module, TV, Display, car stereo and low power applications.

■ PACKAGE OUTLINE

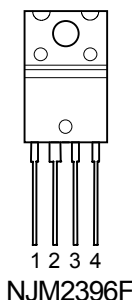


NJM2396F

■ FEATURE

- Low Dropout Voltage $\Delta V_{I-O}=0.2V$ typ. at $I_o=0.5A$
- Output Current $I_o(\text{max.})=1.5A$
- ON/OFF Control
- Internal Short Circuit Current Limit
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-220F-4

■ PIN CONFIGURATION



NJM2396F

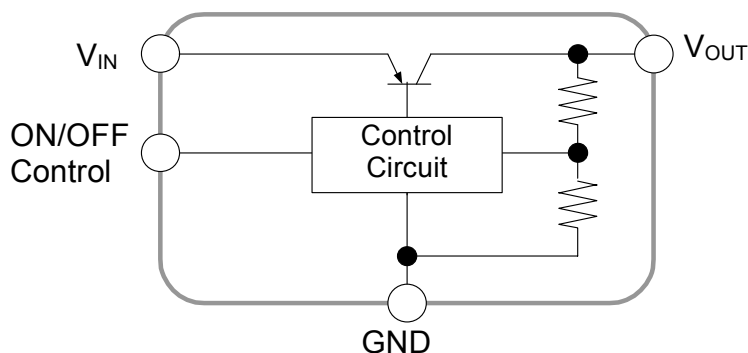
PIN FUNCTION

1. V_{IN}
2. V_{OUT}
3. GND
4. ON/OFF CONTROL

■ OUTPUT VOLTAGE RANK LIST

Device Name	V_{OUT}
NJM2396F33	3.3V
NJM2396F05	5.0V
NJM2396F63	6.3V
NJM2396F08	8.0V
NJM2396F83	8.3V
NJM2396F09	9.0V
NJM2396F12	12.0V

■ EQUIVALENT CIRCUIT



NJM2396

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	+35	V
Control Voltage	V_{CONT}	+35(*1)	V
Output Current	I_O	1.5	A
Power Dissipation	P_D	18(Tc<50°C)	W
Operating Junction Temperature Range	T_J	-40 to +150	°C
Operating Temperature Range	T_{opr}	-40 to 85	°C
Storage Temperature Range	T_{stg}	-50 to 150	°C

(*1): When input voltage is less than +35V, the absolute maximum control voltage is equal to the input voltage.

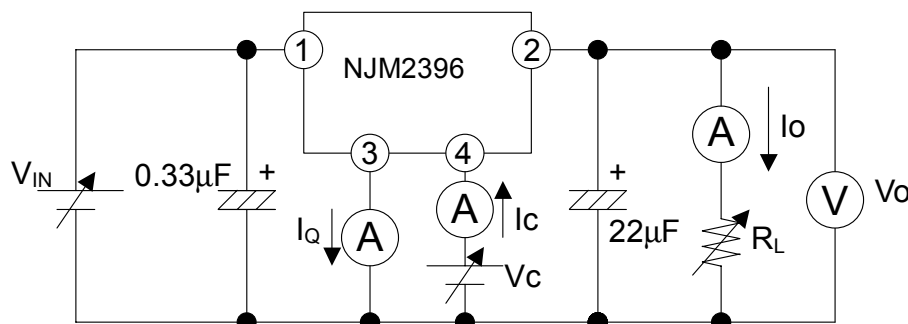
■ ELECTRICAL CHARACTERISTICS ($V_{IN}=V_O+1V, I_O=0.5A, C_{IN}=0.33\mu F, C_O=22\mu F, T_J=25^\circ C$)

Measurement is to be conducted is pulse testing.

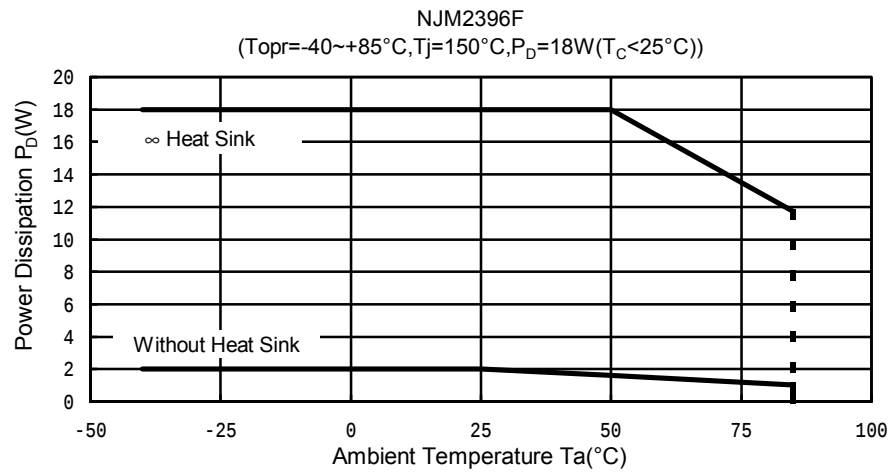
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_O	$V_{IN}=V_O+1V$	-4%	-	+4%	V
Line Regulation	$\Delta V_O/\Delta V_{IN}$	$V_{IN}=V_O+1V$ to V_O+17V	-	0.04	0.16	%/V
Load Regulation	$\Delta V_O/\Delta I_O$	$V_{IN}=V_O+2V, I_O=0A$ to $1.5A$	-	0.2	1.4	%/A
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T$	$T_J=0$ to $125^\circ C$	-	± 0.02	-	%/°C
Standby Current	I_Q	$I_O=0A$	-	-	5	mA
Dropout Voltage	ΔV_{LO}	$I_O=0.5A$	-	0.2	0.5	V
Ripple Rejection	NJM2396F33	$V_{IN}=V_O+2V$ $e_{in}=0.5V_{rms}, f=120Hz$	52	60	-	dB
	NJM2396F05		52	60	-	
	NJM2396F63		52	60	-	
	NJM2396F08		50	58	-	
	NJM2396F83		50	58	-	
	NJM2396F09		50	58	-	
	NJM2396F12		48	58	-	
ON Control Voltage	$V_{CONT(ON)}$		2.0(*2)	-	-	V
OFF Control Voltage	$V_{CONT(OFF)}$		-	-	0.4	V
ON Control Current	$I_{CONT(ON)}$	$V_C=2.7V$	-	-	20	μA
OFF Control Current	$I_{CONT(OFF)}$	$V_C=0.4V$	-	-	-20	μA

(*2): When ON/OFF CONTROL Terminal is open, Output Voltage is ON.

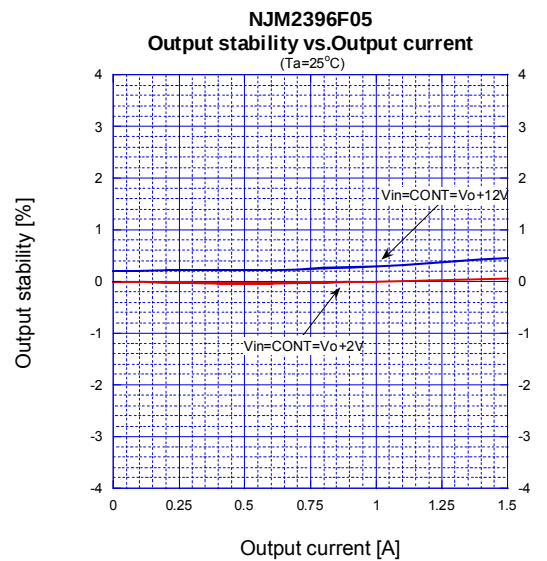
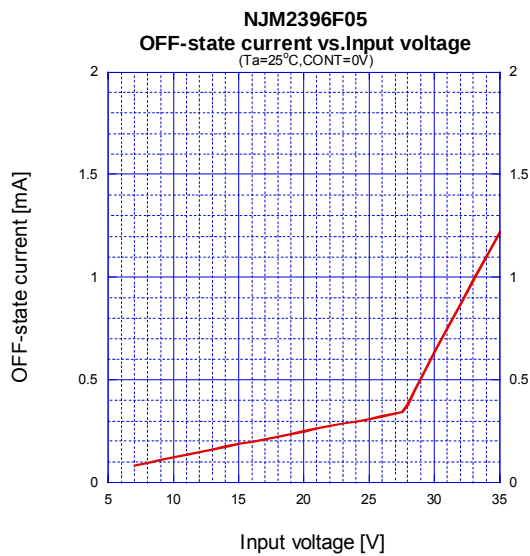
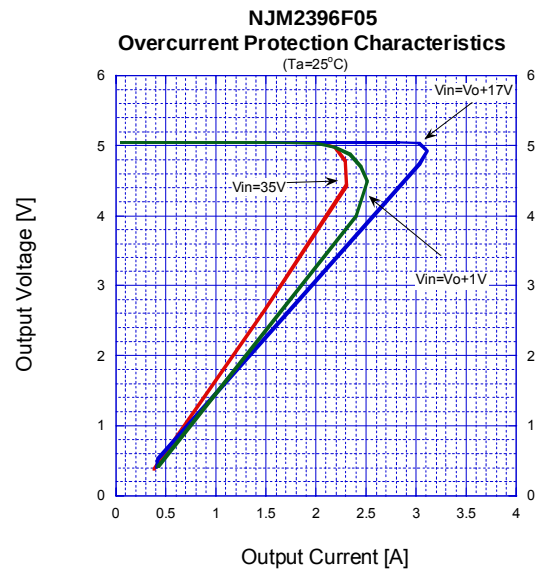
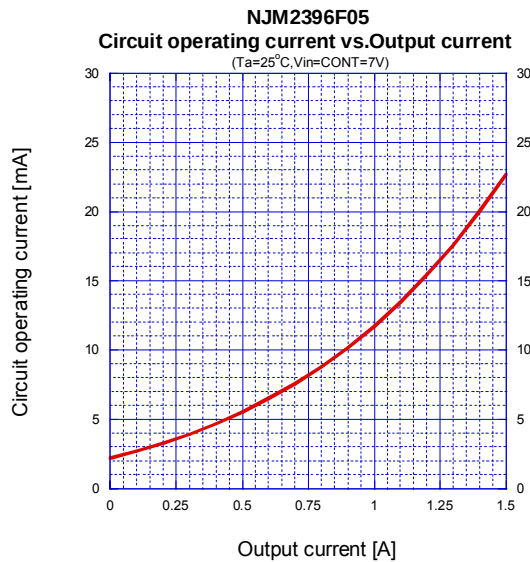
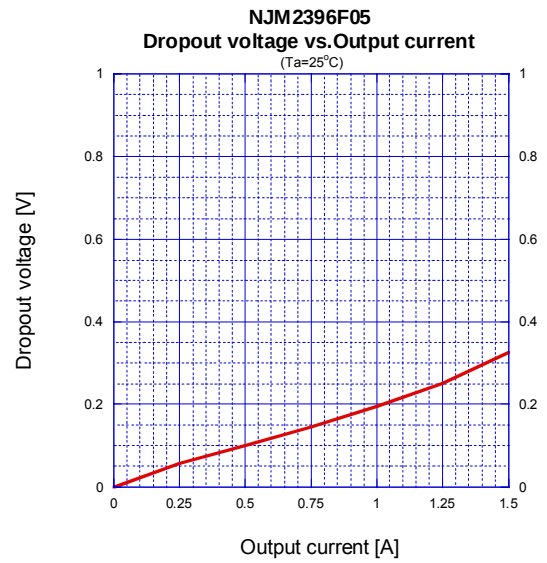
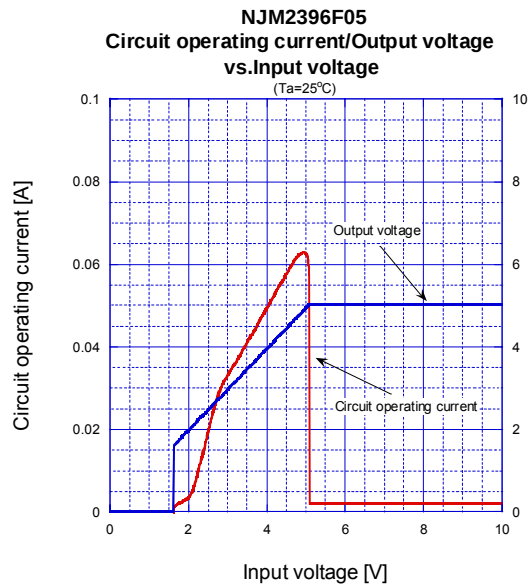
■ TEST CIRCUIT



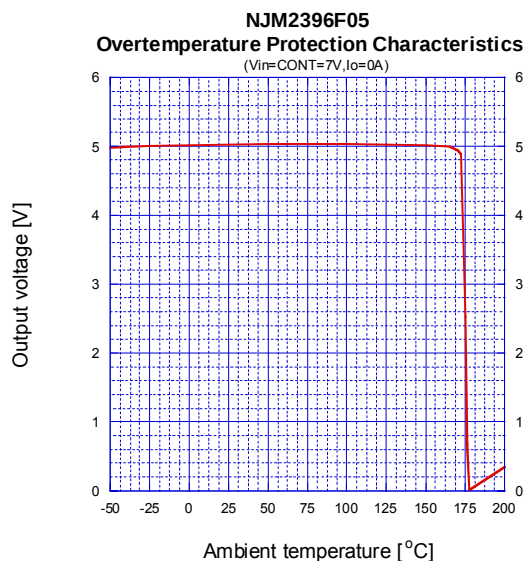
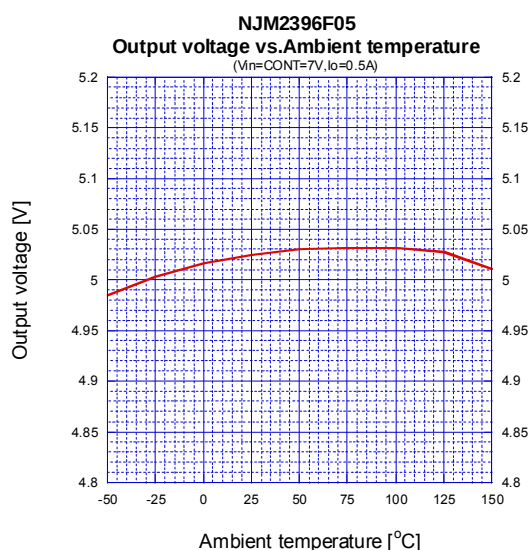
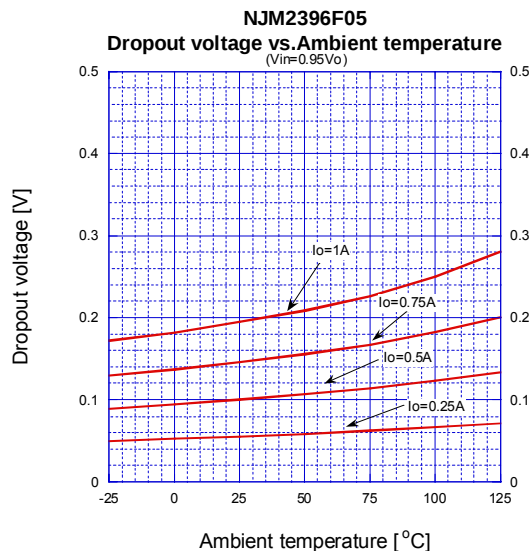
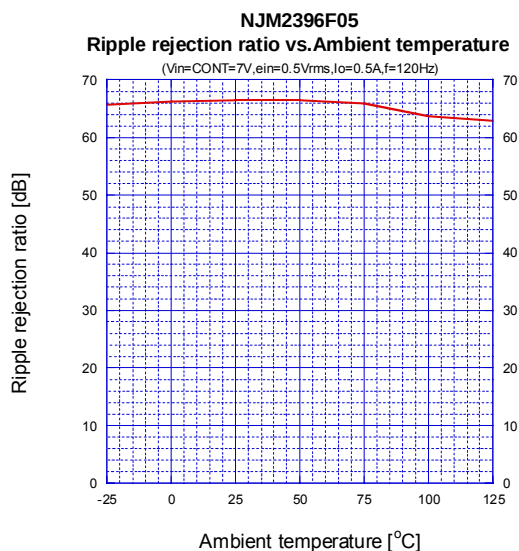
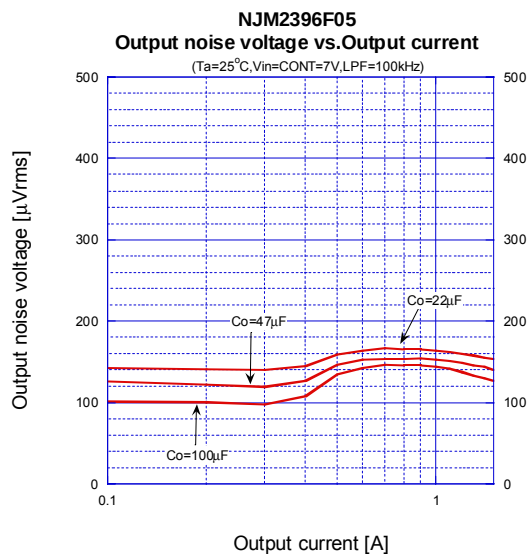
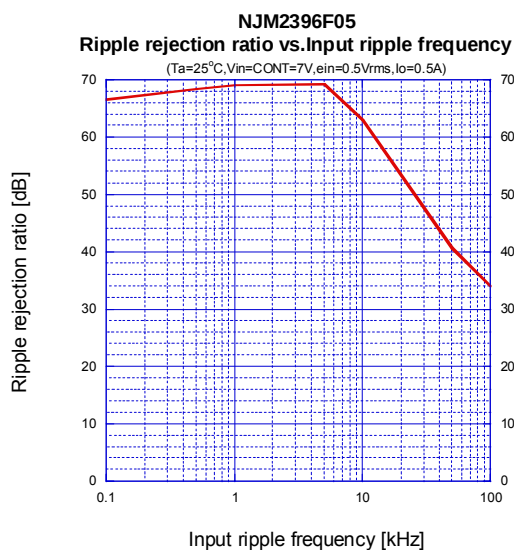
■ POWER DISSIPATION vs. AMBIENT TEMPERATURE



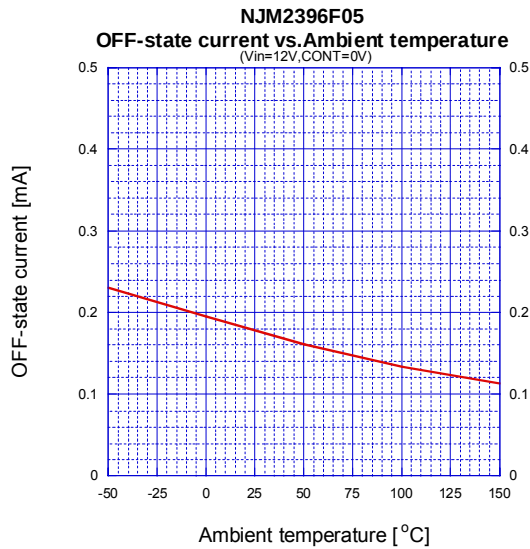
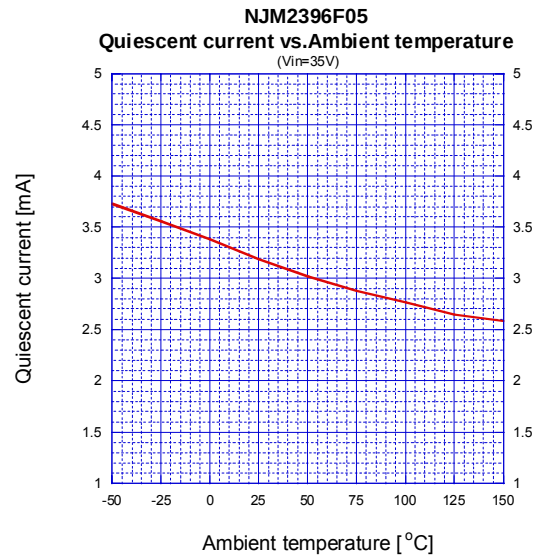
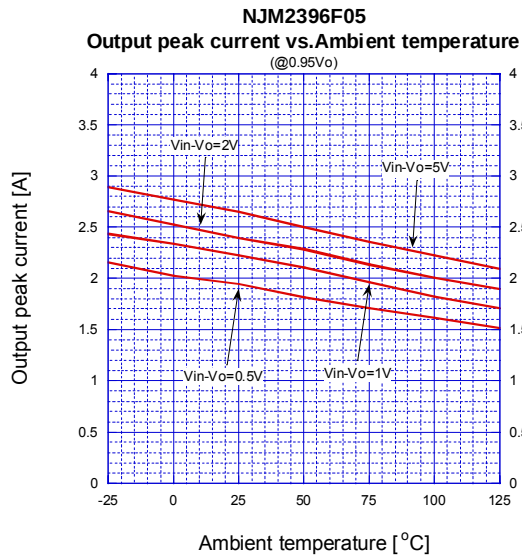
TYPICAL CHARACTERISTICS



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[CAUTION]

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